



Experimental plot system for soil recovery in southern Spain.

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In order to assess the soil loss and regeneration through experimental plots, (2010-2013) a study framed within the Spanish Action Programme against desertification has been designated. An area of 0,75 hectares has been limited and fenced within a public forest in Málaga province, where the Experimental Measurement of Erosion (REME) network has been installed.

The assessment is determined by 8 set of plots with different length designed to control erosion, soil degradation and determination of restoration rates. Data collection is performed periodically by a complete GSM monitoring system and aerial photography system. The study is completed with a periodic and systematic sampling and subsequent laboratory analysis with the aim to evaluate the physical, chemical, microbiological and hydrological components.

Since the principal objective is regeneration of soils, different strategies have been proposed to achieve it. Among these, the use of shrubs as nurse plants in reforestation, restoration of burned forest areas, and implementation of new technologies for degraded soils revitalization. As results, a hydrological model within Mediterranean conditions has to be established. For the model design, runoff characterization processes and hydrological connectivity mechanisms might be interrelated, as well infiltration, ex-filtration and re-infiltration processes over plots with similar use but different length. Moreover, it seems necessary to estimate the sedimentation variability collected in runoff water depending on the soil use. Finally, a parallel goal, but not less important is to create awareness among the population regarding soil fragility in Mediterranean climate.

Within the scope of restoration, strategies towards soil recovery and soil restoration are included. Some of the expected findings are going to determine the soil recovery after different treatments application; also, calculate the role the different soil recovery techniques play in the runoff processes, the infiltration mechanisms and the erosion control processes, all from the hydrologic connectivity perspective. Furthermore, is expected to establish the correlation between microbiological activity, the degradation soil degree and desertification.

Another objective is to evaluate the organic matter quality and the phosphorus liberation process. Finally, another key point will be to transfer the obtained results in the superficial formation recovery after the use of different techniques to the endusers.